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**WHO/CDC/USAID project  
“Community TB care in Africa”:  
interim progress report**

**WHO report**

on a meeting in Harare, Zimbabwe, 7-9 December 1998

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### Glossary of abbreviations

AFRO	Africa Regional Office (of the World Health Organization)
AIDS	Acquired Immunodeficiency Syndrome
CDC	Centers for Disease Control (Atlanta, United States of America)
CHW	Community Health Worker
DTO	District Tuberculosis Officer
GTB	Global Tuberculosis Programme (of the World Health Organization)
HIV	Human Immunodeficiency Virus
IUATLD	International Union Against Tuberculosis and Lung Disease
KAP	Knowledge, Attitudes and Practice
KNCV	Royal Netherlands Tuberculosis Association
NGO	Non-Governmental Organisation
NTP	National Tuberculosis Programme
OR	Operational Research
PHC	Primary Health Care
PI	Principal Investigator
PLWHA	People Living With HIV/AIDS
TB	Tuberculosis
TB/HIV	HIV-related TB
UNAIDS	Joint United Nations Programme on HIV/AIDS
WHO	World Health Organization



## Summary

The HIV-fuelled TB epidemic in sub-Saharan Africa is outstripping the ability of health services to cope. National TB Programmes (NTPs) face the challenge of improving access to diagnosis and treatment and assuring effective treatment and cure. Decentralising the provision of TB care beyond health facilities and into the community has the potential to overcome some of the limitations of reliance on health facilities in facing the challenge.

The project “Community TB Care in Africa” aims to evaluate the community contribution to effective TB control, as part of NTP activities, in high HIV prevalence countries. Evaluation outcomes are acceptability, effectiveness, affordability and cost-effectiveness. If successful, the project will generate policy guidelines for Ministries of Health and NGOs on how NTPs and communities can work together to ensure successful treatment of patients. WHO is leading and coordinating this collaborative project, with funding in the first year of the project from USAID via CDC and technical support from CDC, USAID, KNCV, IUATLD, and UNAIDS.

The overall project began in late 1996 with mobilisation of funding and identification of sites and investigators. The countries with district-based community TB care interventions under way as part of the overall project are: Botswana (project funded separately by CDC), Kenya, Malawi, South Africa (Guguletu), Uganda (Kampala and Kiboga) and Zambia. These district-based projects provide patients with the option of community TB care, within programmes implementing the internationally recommended strategy for TB control. The individual projects began at different times in 1998 and will run for 2-3 years. Investigators have completed a situation analysis in each of the following 3 sites, preparatory to a proposed intervention: Rundu District, Namibia; Hlabisa, South Africa; Kilombero District, Tanzania (which falls outside the main umbrella project but has received technical support from WHO).

The different district-based projects have made variable progress in successfully making available the option of TB treatment in the community, and assessing its acceptability, effectiveness, affordability and cost-effectiveness. The project in Francistown (Botswana) is at an early stage of making the community TB treatment option available. The project in Kampala (Uganda) has not yet succeeded in decentralising the provision of TB care to make full use of existing health facilities, and in identifying and mobilising CHWs. The project in Ndola (Zambia) has integrated the provision of TB treatment with an existing HIV/AIDS community care scheme, with up to now quite small numbers of TB patients treated in the community successfully.

The project in Lilongwe (Malawi) has successfully decentralised the provision of TB care using many health facilities in the district, and made widely available the option of community TB treatment to patients with sputum smear-negative pulmonary TB. The projects in Machakos (Kenya), Guguletu (South Africa) and Kiboga (Uganda) have successfully made the option of community TB treatment widely available in the respective districts, with generally satisfactory rates of treatment

success. The indications at this interim stage are that the option of community TB treatment is acceptable and affordable (from the point of view of both the patients and the health care provider). Evaluation of cost-effectiveness will provide powerful evidence for policy-makers, if the evaluation shows that providing the option of community TB treatment is not only effective, acceptable, and affordable, but also cost-effective.

Successful collaboration among the general health services, NTP and CHWs is crucial and depends on the following: i) good communication links and referral scheme; ii) good education of the TB patient and the patient's family; iii) training of the CHWs and the health services' staff; iv) system of regular supervision of CHWs by NTP and general health services' staff. The main challenges include the identification of the leadership responsible for managing the process of introducing the community TB treatment option, development of management capacity, and ensuring sustainability.

The projects in Rundu (Namibia), Hlabisa (South Africa) and Kilombero (Tanzania) need to move on to the implementation of community TB treatment, using the results of their situation analyses. The projects in Francistown (Botswana), Kampala (Uganda) and Ndola (Zambia) need to review the reasons for, respectively, a slow start, limited uptake of the community TB treatment option, and limited case registration. The NTP staff involved in the projects in Lilongwe (Malawi), Machakos (Kenya), Guguletu (South Africa) and Kiboga (Uganda) face the challenges of demonstrating sustainability after the end of the "special project" phase, and of spearheading the extension of a successful approach more widely.

## **Report**

### **1. Background**

"It is important that the community should be involved in the (tuberculosis) programme".<sup>1</sup> The goal of the project "Community TB care in Africa" is to establish the evidence base for this assertion. The research question is "what is the effectiveness, acceptability, affordability and cost-effectiveness of a district tuberculosis programme which provides the option of treatment supervision in the community (as well as in the health facilities), in comparison with one which doesn't?". The project findings will generate policy guidelines on how communities can successfully contribute to TB programme activities in the region, in ways which are acceptable, effective, affordable and cost-effective.

The rationale for the project arises from the fact that the HIV-fuelled TB epidemic in sub-Saharan Africa is outstripping the ability of health services to cope.<sup>2</sup> National TB Programmes (NTPs) face the challenge of improving access to diagnosis and treatment and assuring effective treatment and cure. Decentralising the provision of TB care beyond health facilities and into the community has the potential to overcome some of the limitations of reliance on health facilities in facing the challenge.<sup>3</sup>

The project “Community TB Care in Africa” aims to evaluate the community contribution to effective TB control, as part of NTP activities, in high HIV prevalence countries. Demonstration of successful community contribution to NTP activities will generate policy guidelines for ministries of health and NGOs. WHO is leading and coordinating this collaborative project, with funding in the first year of the project from USAID via CDC and technical support from CDC, USAID, KNCV, IUATLD, and UNAIDS.

The project began in late 1996 with mobilisation of funding and development, followed by review and approval of project proposals developed by investigators in selected sites.<sup>4</sup> The countries with district-based community TB care interventions under way as part of the overall project are: Botswana (project funded separately by CDC), Kenya, Malawi, South Africa (Guguletu), Uganda (Kampala and Kiboga) and Zambia. These district-based projects provide patients with the option of community TB care, within programmes implementing the internationally recommended strategy for TB control.<sup>5</sup> The projects began at different times in 1998. Investigators have completed a situation analysis in each of the following 3 sites, preparatory to a proposed intervention: Rundu District, Namibia; Hlabisa, South Africa; Kilombero District, Tanzania (which falls outside the main umbrella project but has received technical support from WHO).

The purpose of the meeting was to review interim project progress.

## **2. Meeting objectives**

1. To collate project results of case finding and cohort analysis of TB treatment outcomes.
1. To collate the results so far of the economic analyses conducted by the individual projects.
2. To collate training tools and educational materials developed by the individual projects, in order to contribute to the development of a training manual for primary level health workers and community members.
3. To share experiences gained by project investigators so far in order to facilitate the further implementation of the individual projects.
4. To promote the development of a network of applied field researchers in TB control in Africa.

## **3. Community TB care intervention projects: current status and next steps**

### **Francistown, Botswana**

#### *Background*

The National AIDS Control Programme has initiated a home-based care programme for people living with HIV/AIDS (PLWHA) who are chronically ill. The cadre of personnel responsible for care activities are Family Welfare Educators (FWEs). The goal of the project is to integrate effective TB care with the home-based care programme for PLWHA who are unable to attend health centres for directly observed treatment. The project investigators have established a referral scheme for

PLWHA diagnosed with TB to receive support at home from the FWEs, who will directly observe TB treatment. Role-players (hospital and health centre nurses, FWEs, social workers) completed training in Q3 1998. The project investigators have produced a caregiver handbook "Home-based care for the TB patient". The delay until Q4 1998 in the start of implementation of this project in Francistown was due to the reorientation of project aims and objectives following discussions between key stakeholders.

### *Acceptability*

A study of knowledge, attitudes and practice (KAP) of care-givers and patients showed that among TB patients and care-givers there was considerable fear of TB and ignorance of the basic facts about the disease and the treatment, and a positive attitude towards the provision of TB care at home.

### *Effectiveness*

By the end of November 1998, there were 10 TB patients, of whom 8 had pulmonary TB, enrolled for home-based TB care as part of the home-based care programme for PLWHA.

### *Next steps*

1. In view of the small numbers of patients registered, assess current and predicted potential coverage of both the home-based care programme for PLWHA (i.e. the proportion of PLWHA in need of home-based care who are registered in the programme) and of the TB project (i.e. the proportion of PLWHA diagnosed with TB who are receiving home TB care).
2. If current coverage is substantially below potential coverage, explore the reasons for this and attempt to expand coverage.
3. Report treatment outcomes among project patients as cohorts complete treatment.

### *Affordability and cost-effectiveness*

The 2 objectives of the economic evaluation presented in Harare were: a) to compare the cost and cost-effectiveness of home and hospital-based DOTS for chronically ill TB patients; b) to identify whether the introduction of home-based TB care will significantly reduce the average and total hospital costs associated with caring for chronically ill tuberculosis patients. However, subsequent discussions have highlighted the importance of comparing two overall systems: one in which the community treatment option is available with one in which it is not available. Therefore the data collected for the objectives stated in the study protocol will also be used to assess (a) the cost and cost-effectiveness of care for chronically ill patients in the absence of home care and (b) the cost and cost-effectiveness of care for chronically ill patients when home care is available as a treatment option. This will provide a useful overall analysis of how provision of home care has affected the overall cost and cost-effectiveness of care for chronically ill patients. The data being



collected for the objectives stated in the study protocol will be sufficient to facilitate this analysis.

Data collection and analysis have to date focused on the costs incurred by the principal caregiver with home TB care, and on the cost/day of hospital care for tuberculosis patients. The results showed that caregiver costs are high in comparison with income levels, and that many caregivers were relying on financial support from their extended family. The economic costs to caregivers (which include the cost of time spent providing care to patients in addition to the financial expenditure being incurred) have not yet been estimated, but this will be done in the near future using data already collected. The survey of caregivers has also shown that the majority are single women over the age of 50; that almost half are unemployed and a further 24% self-employed; and that the caregiver is most often the mother of the patient. The cost of hospitalization for TB patients was reported as US\$24 per day.

### *Next steps*

To complete the analysis, data collection and analysis are required in five main areas.

- i) The health services costs associated with provision of home-based TB care need to be assessed, so that the health services costs per patient receiving home-based TB care can be calculated (at present only care-giver costs have been assessed);
- ii) The average period of hospitalization for chronically ill TB patients who do not access home-based care is required, so that the number of days can be used in combination with the already calculated cost/day to assess the average cost per patient of hospital-based care;
- iii) The costs incurred by the principal caregiver for patients who do not access home-based care need to be assessed, in order to enable comparison with the costs incurred by caregivers when patients do access home-based care;
- iv) Data concerning the total number of chronically ill TB patients cared for in hospital in 1997 and 1999, and the total number of bed-days for these patients in each year, are needed to enable the total and average hospital costs of care for chronically ill tuberculosis patients in 1997 and 1999 to be calculated;
- v) The overall cost and cost-effectiveness of (a) care for chronically ill tuberculosis patients when HBC is available as a treatment option and (b) care for chronically ill tuberculosis patients when HBC is not available as a treatment option need to be assessed. For (a), this will simply be the cost and cost-effectiveness of the hospital-based approach, using effectiveness data from the period prior to HBC becoming available. (b) will be calculated by analysing data concerning the costs and cost-effectiveness of home and hospital-based care in 1998/9 in combination with the numbers of chronically ill patients relying on each approach (i.e. a weighted average according to the numbers of chronically ill patients using each treatment option).

Confidence intervals need to be included in the analysis of patient costs, so that the reliability of cost estimates is clear.

The investigators plan to complete remaining data collection and analysis for the first objective by April 1999 and for the second objective by early 2000.

## Machakos, Kenya

### Background

Machakos District is mostly rural with a surface area of 5818 km<sup>2</sup> and a population in 1996 of 1 million. The Kenya NTP has made available entirely ambulatory TB treatment in Machakos District, using available health facilities (hospitals and health centres) and established groups of community health workers (CHWs). The CHWs are mostly women involved in community-based distribution of contraception and "Bamako Initiative" pharmacies. The project investigators have developed a referral scheme which enables all TB patients diagnosed at the different diagnostic centres in the district to have the option of TB treatment under direct observation where it is most convenient, e.g. in the community, at a nearby hospital or health centre. Currently two thirds of TB patients opt for treatment at a health facility and one third in the community. Project investigators briefed provincial and district health management teams in Q2 1997, trained health facility staff and CHWs in Q3 1997, and developed information leaflets for TB patients and their families, CHWs and health facility staff, prior to project implementation in Q4 1997.

### Acceptability

No report available.

### Effectiveness

Case-finding, Q4 1997, Q1, 2 & 3 1998

New cases	Re-treatment cases	Total
1240	26	1266

No. sputum smear-positive (%)	No. sputum smear-negative (%)	No. extra-pulmonary (%)	Total new cases	Quarter
125 (57.3)	88 (40.4)	5 (2.3)	218	Q4 1997
217 (71.1)	69 (22.6)	19 (6.2)	305	Q1 1998
188 (52.5)	145 (40.5)	25 (7.0)	358	Q2 1998
212 (59.1)	138 (38.4)	9 (2.5)	359	Q3 1998
<b>742 (59.8)</b>	<b>440 (35.5)</b>	<b>58 (4.7)</b>	<b>1240</b>	<b>Total</b>

Treatment supervision options of 1240 new TB cases (all forms) registered between 1 October 1997 and 30 September 1998.

Treatment supervision option	No. (%)
Out-patient attendance at one of the 3 main hospitals	586 (47.3)
Out-patient attendance at health centre	268 (21.6)
Community health worker	341 (27.5)
In-patient in one of the 3 main hospitals	45 (3.6)
<b>Total</b>	<b>1240 (100)</b>

## Treatment outcomes

Treatment outcomes for new sputum smear-positive cases, before the introduction of the option of community TB care (1996) and afterwards (Q4 1997 & Q1 1998).

Time period	Cured (%)	Completed treatment (%)	Failed treatment (%)	Died (%)	Interrupted treatment (%)	Transfer (%)	Total (100%)
1996	421 (70.2)	88 (14.7)	21 (3.5)	37 (6.2)	15 (2.5)	18 (3)	600
Q4 1997	93 (74.4)	6 (4.8)	0 (0)	10 (8)	5 (4)	11 (8.8)	125
Q1 1998	166 (86.9)	7 (3.7)	1 (0.5)	9 (4.7)	4 (2.1)	4 (2.1)	191

The district has maintained a high treatment success rate (90.6% in Q1 1998) while providing entirely ambulatory treatment and closing down the district hospital TB ward.

### *Next steps*

1. Intensify case-finding activities throughout the district, through sensitisation of health workers (health service staff and CHWs) and public information and education activities.
2. Assess sustainability of contribution to TB control of CHWs, by evaluating motivation, measuring turnover, and determining ongoing commitment to support volunteers involved in community-based distribution of contraception and Bamako Initiative pharmacies.
3. Start planning how to scale up to provide option of community TB treatment throughout Eastern Province.

### *Affordability and cost-effectiveness*

The aim of the economic evaluation is to compare the cost and cost-effectiveness of the previous approach to case management (health facility treatment supervision) with the approach including the option of CHW treatment supervision (introduced on November 1st 1997). This is being done separately for (a) new smear-positive pulmonary tuberculosis patients and (b) new smear-negative pulmonary tuberculosis patients. Data collected will enable the calculation of health system costs, patient costs and community costs.

Data collection is ongoing. Preliminary results so far since November 1997 include patient costs in the initial phase of treatment (shown in the table).

Cost item	Cost per attendance for direct observation of treatment (US \$)
Visit to out-patient department at Kathianga or Kangundo hospitals	2.88
Visit to Machakos district hospital TB clinic	1.99
Visit to a dispensary	0.97
Visit to a health centre	0.64
Visit to volunteers at a Bamako Initiative pharmacy	0.14

The health system cost prior to November 1997 of a day in Machakos district hospital for a tuberculosis patients was US\$3.1.

### *Next steps*

1. Complete the cost and cost-effectiveness analysis by July 1999.
2. Make these analyses available in the form of a worked example for the package of generic protocols and accompanying documents being developed for cost and cost-effectiveness analysis of tuberculosis services.

## **Lilongwe, Malawi**

### *Background*

Lilongwe District is mainly urban, with a population in 1998 of 1,330,000. The Malawi NTP has decentralised the provision of TB care in the district since 1997, so that all TB patients have the option of treatment supervision at one of 21 health facilities (including 11 diagnostic centres). A referral scheme links up the 11 diagnostic centres (hospitals and health centres) and the treatment centres. Patients with sputum smear-negative pulmonary or extrapulmonary TB have the additional option of treatment supervision in the community. This involves the patients' "guardians", i.e. reliable members of the community nominated by patients to help represent their interests. The NTP will extend the community option if successful to patients with new sputum smear-positive TB. Project investigators in 1997 ran training and briefing sessions for general health service staff, traditional healers and village headmen and CHW groups. The project included a run-in period in Q4 1997 and started registering patients from 1 January 1998.

### *Acceptability*

No data available.

### *Effectiveness*

#### Case-finding, Q1 & 2 1998

New cases (%)	Re-treatment cases (%)	Total
1887 (95.1)	98 (4.9)	1985 (100%)

#### Type of TB among new patients

No. sputum smear-positive (%)	No. sputum smear-negative (%)	No. extra-pulmonary (%)	Total new cases
769 (40.8)	655 (34.7)	463 (24.5)	1887

## Treatment outcomes

The table shows treatment outcomes at 2 months for 1706 TB patients (all forms) who were registered and received at least the first treatment dose.

N.B. No results available for 42 (2%) patients who died or transferred out before starting treatment, and for 237 (12%) patients on whom information is missing.

Supervision of initial phase	Completed treatment (%)	Died (%)	Interrupted treatment (%)	Transferred (%)	Total (100%)
In-patient	390 (90)	41 (9)	4 (1)	0 (0)	435 (100)
In-patient then ambulatory	143 (95)	3 (2)	3 (2)	2 (1)	151 (100)
Ambulatory	916 (82)	81 (7)	58 (5)	65 (6)	1120 (100)
All patients	1449 (85)	125 (7)	65 (4)	67 (4)	1706 (100)

## Supervision options

Of the 1271 patients who received ambulatory care (151 who initially started in hospital and 1120 who had ambulatory treatment throughout), 1229 started treatment (42 patients either defaulted or died before starting treatment). Of these 1229 patients, 225 (18%) attended a hospital TB clinic, 466 (38%) attended a health centre, and 538 (44%) had treatment supervised by a guardian.

The table shows 2 month treatment outcomes in adults with new sputum smear-positive pulmonary TB, for the Q1 & 2 1998 cohorts in comparison with Q1 & 2 cohorts 1997 (before decentralisation).

Time period	Smear negative (%)	No smear done (%)	Smear positive (%)	Died (%)	Interrupted treatment or Transferred (%)	Total (100%)
Q1 & 2 1997	325 (80.4)	0 (0)	6 (1.5)	32 (7.9)	41 (10.1)	404 (100)
Q1 & 2 1998	536 (71.5)	53 (7.1)	11 (1.5)	58 (7.7)	92 (12.3)	750 (100)

The district has maintained a high treatment success rate (78.6% in Q1 & 2 1998) while decentralising provision of treatment of patients with sputum smear-positive pulmonary TB and considerably decongesting the hospital TB wards.

## Next steps

1. Improve documentation of referral system in order to obtain complete information on all patients registered (no information on 12% of patients).
2. Improve data collection and analysis in order to document all treatment outcomes (with separate results for treatment interruption and transfer).
3. Ensure all patients have a smear done at the end of treatment.

3. Compare case-finding and treatment outcomes in the high population density part of the district with those in the semi-urban parts of the district, largely served by the 3 mission hospitals.

#### *Affordability and cost-effectiveness*

The aim of the Lilongwe project is to compare for new patients (smear-positive and smear-negative pulmonary TB) the costs and cost-effectiveness of TB treatment in 1997 and 1998, i.e. before and after the introduction of decentralisation and the option of community TB treatment (for smear-negative patients).

The table shows some preliminary results of health service costings in 1997. The proportion of patients in mission hospitals is approximately 20%.

Health service item	Cost (US\$)
Day in hospital – Mission	3
- Government	4.7
Out-patient visit – Hospital	0.3
- Health centre	0.9
Chest X-ray	7.2-8.5
Sputum smears	1.4-2.3

The lower cost of an outpatient visit at a hospital compared with at a health centre is on account of the very high patient throughput of the hospital out-patient department. The estimated cost of a single TB patient visit for observation of treatment, averaged across all sites, was US\$0.7. Preliminary costings in Kenya (with about the same income levels) are similar.

A preliminary analysis of the costs of managing a new smear-positive and new smear-negative patient to treatment completion in both 1997 and 1998 is based on the costs calculated for individual components of diagnosis and treatment to date. Although data collection is not yet complete, this preliminary analysis suggests a large fall in the costs of managing a new smear-positive patient, from US\$311 in 1997 to US\$112 in 1998, a 64% reduction. Preliminary results suggest the cost has increased slightly, from US\$55 for the unsupervised approach used in 1997 to US\$62 for the approach introduced in 1998, in which guardians and health facilities are used for DOTS in the first two months.

#### *Next steps*

1. Collect patient/guardian cost data January – March 1999.
2. Collect and analyse remaining health services cost data between December 1998 and March 1999.
3. Undertake cost-effectiveness analysis in July 1999, when sufficient outcome data for the fully decentralised approach will be available.

## **Guguletu, South Africa**

### *Background*

Guguletu is a predominantly Xhosa township near Cape Town established in the 1960s with a population in 1997 of about 130,000. The NGO “TB Care Association” in the Western Cape currently manages the CHW contribution to TB care, initially established in 1994 by the now defunct NGO “TB Alliance”. The “TB Care Association” rewards CHWs through a financial incentive scheme, as the Association believes the CHW contribution exceeds that of voluntary service. The NGO, general health services (Municipal and Provincial) and the community are equal partners in the scheme under the National TB programme. There is an established referral scheme under which TB patients can choose the most convenient option for treatment, e.g. in the community, workplace or clinic. All patients are registered at one of the 2 clinics serving the township, Guguletu and Vuyani.

### *Acceptability*

Extensive research has been conducted and the results published on the acceptability of community contribution to TB care in the Western Cape.<sup>6-8</sup> On account of high rates of treatment interruption, there is a need to determine health service barriers and patients’ perceived barriers to completing anti-TB treatment. This study with a focus on patients’ perceptions found that the main barriers were associated with the cycle of poverty in which many TB patients are trapped. Completing anti-TB treatment is a low priority for many patients faced with the daily struggle to survive, often compounded by the problems of substance abuse. The results of exploring patients’ beliefs were that many patients strongly hold traditional beliefs and use traditional healers, in a way which is complementary to use of the health services.

### *Next steps*

1. Translate the lessons learned from the patients’ perspective into measures which the health services, TB programme and NGOs can take to help patients overcome the perceived barriers, with the aim of improving TB control.
2. Incorporate insights and information gained into training packages and programmes for health service personnel and CHWs.
3. Explore liaison with a WHO health promotion pilot project in the Cape Metropolitan Area, to identify appropriate community groups and their potential role in relation to health promotion and TB.

### *Effectiveness*

#### **Case finding**

The total number of pulmonary TB patients (new and retreatment) registered in Guguletu in Q3 & 4 1997 and Q 1,2 & 3 1998 was 820, of whom 695 (84.8%) were smear-positive, 114 (13.9%) smear-negative (culture-positive), and 11 (1.3%) diagnosed without bacteriological confirmation. The table below shows the numbers

of new and retreatment patients with smear-positive pulmonary TB choosing the different treatment options (other = workplace, school, hospital) for the period 1.7.97 to 30.9.98.

Variable	Clinic n = 477 n (%)	Community n = 151 n (%)	Other n = 64 n (%)	Total n = 692
Clinic				
Guguletu	341 (69)	108 (22)	43 (9)	492 (71)
Vuyani	136 (68)	43 (22)	21 (11)	200 (29)
Gender				
Male	326 (68)	86 (57)	35 (55)	447 (65)
Female	151 (32)	65 (43)	29 (45)	245 (35)
Patient category				
New	309 (65)	122 (81)	43 (67)	474 (69)
Retreatment	168 (35)	29 (19)	21 (33)	218 (32)

#### Treatment outcomes

The table shows treatment outcomes by supervision option for the Q 3 & Q 4 1997 cohorts of patients with new smear-positive pulmonary TB.

Treatment option	Cured (%)	Completed treatment (%)	Failed treatment (%)	Died (%)	Interrupted treatment (%)	Transfer (%)	Total (100%)
Clinic	54 (60)	11 (12)	1 (1)	2 (2)	17 (19)	5 (6)	90
Community	47 (68)	6 (9)	0 (0)	0 (0)	13 (19)	3 (4)	69
Other	12 (50)	5 (21)	0 (0)	3 (12)	4 (17)	0 (0)	24
<b>Total</b>	<b>113 (62)</b>	<b>22 (12)</b>	<b>1 (0)</b>	<b>5 (3)</b>	<b>34 (19)</b>	<b>8 (4)</b>	<b>183</b>

The overall treatment success rate is 73.7%.

The table shows treatment outcomes by supervision option for the Q 3 & 4 1997 cohorts of patients with previously treated smear-positive pulmonary TB.

Treatment option	Cured (%)	Completed treatment (%)	Failed treatment (%)	Died (%)	Interrupted treatment (%)	Transfer (%)	Total (100%)
Clinic	28 (48)	7 (12)	1 (2)	4 (7)	17 (29)	2 (3)	59
Community	18 (67)	2 (7)	0 (0)	0 (0)	6 (22)	1 (4)	27
Other	3 (27)	1 (9)	0 (0)	2 (18)	3 (27)	2 (18)	11
<b>Total</b>	<b>49 (51)</b>	<b>10 (10)</b>	<b>1 (1)</b>	<b>6 (6)</b>	<b>26 (27)</b>	<b>5 (5)</b>	<b>97</b>

The overall treatment success rate is 61%.



### *Next steps*

1. Identify health service barriers to completion of treatment, in addition to the patients' perceptions identified in the study, in order to implement measures urgently to reduce the high rate of treatment interruption.
2. Report successive cohorts separately in order to obtain trend against time.
3. Hold a workshop with health service personnel and CHWs in Guguletu to explore reasons for recent fluctuations in treatment outcome data and to identify health service barriers to completion of treatment.

### *Affordability and cost-effectiveness*

The goal of the economic evaluation is to compare the cost-effectiveness of community-based and clinic-based TB treatment of patients with smear-positive pulmonary TB. The 2 objectives are: i) to identify the cost-effectiveness of TB treatment in Guguletu (a) overall and (b) for each of the three major supervision options i.e. clinic, community and workplace; ii) to identify the cost-effectiveness of tuberculosis treatment in Nyanga and Chapel St., where treatment is only clinic-based.

In Guguletu, the cost of TB care per new smear-positive patient in the community in 1998 was US\$301, in the workplace the cost was US\$559, and in the clinic the cost was US\$795. This meant that the overall cost per patient, calculated as a weighted average across all supervisory sites according to the numbers of patients choosing each supervision option, was US\$578. In Chapel Street, one of the two districts assessed for comparison (there are no results from Nyanga to date), where only clinic-based care is available, the cost was US\$914 per patient.

For retreatment patients, the cost in Guguletu in 1998 was US\$567 per patient in the community, US\$522 in the workplace, and US\$1 103 in clinics. Overall, the average cost per patient was US\$888. In Chapel Street, the cost per patient was US\$1 262.

For new smear-negative tuberculosis patients, the cost results therefore showed that within Guguletu, the inclusion of community and workplace-based supervision reduced the average cost of care per patient by 27% in comparison with the average cost that would apply were only clinic-based supervision available. In comparison with Chapel St., the average cost was 54% lower.

For retreatment patients, the cost results showed that the inclusion of community and workplace-based supervision as treatment options reduced the average cost of care by 19% in comparison with the average cost that would apply were only clinic-based supervision available. In comparison with Chapel St., the average cost was 30% lower.

The tables show the cost-effectiveness results available for Guguletu only, reported in terms of the cost per case cured and cost per successful treatment, for new and retreatment smear-positive pulmonary TB cases.

#### Cost (US \$) for new cases

Cost-effectiveness	Community	Clinic	Workplace
Per case cured	625	1 987	864
Per successful treatment	529	1 523	510

For new smear-positive patients, the overall cost-effectiveness of tuberculosis treatment in Guguletu was US\$1 326 per patient cured and US\$1 015 per patient successfully treated.

#### Cost (US \$) for retreatment cases

Cost-effectiveness	Community	Clinic	Workplace
Per case cured	1 215	4 010	7 157
Per successful treatment	1 049	2 799	3 186

For retreatment patients, the overall cost-effectiveness of treatment was US\$3 589 per patient cured and US\$2 356 per patient successfully treated.

These overall results will be compared with those for the comparison districts of Nyanga and Chapel Street when outcome data (and cost data for Nyanga) become available.

#### *Next steps*

1. Collect and analyse case-finding and treatment outcome data in both Nyanga and Chapel Street, and collect cost data in Nyanga, to enable the cost-effectiveness of tuberculosis treatment in these two districts to be compared with the figures already calculated for Guguletu.
2. Start planning how to scale up the approach, by costing the provision of the option of community treatment throughout the Cape Metropolitan Area, and engaging in discussion the decision-makers (at National, Provincial and Municipal levels).
3. Perform sensitivity analysis.
4. Report the results of the cost-effectiveness analysis, including comparison with other sites, to role-players.

#### **Kampala, Uganda**

##### *Background*

The Uganda NTP has so far had greater success generally in the rural areas than in the capital. The NTP has not yet decentralised the provision of TB care to make maximum use of urban health centres. The project investigators have introduced a referral scheme and trained hospital and health centre staff, so that patients diagnosed at the Mulago Hospital TB clinic who live in Kawempe Division are referred to Kawempe Health Centre. "The AIDS Support Organisation" (TASO) is the NGO identified to take on the task of mobilising the community for HIV/AIDS activities and identifying community TB treatment supervisors in Kawempe Parish.

This is a part of the densely populated Kawempe Division of Kampala. TASO has previously mobilised rural communities, but its main role in Kampala has been in running HIV/AIDS clinics. Lack of societal cohesion in a shifting urban population has hindered the mobilisation of volunteers and the stigma attached to HIV/AIDS has resulted in little acceptance of TASO volunteers in the role of supporting TB patients and supervising their treatment.

#### *Acceptability*

No report available.

#### *Effectiveness*

The numbers of patients referred from Mulago Hospital TB clinic to Kawempe Health Centre are small so far, e.g. in Q1 1998, 10 new sputum smear-positive pulmonary cases, all of whom successfully completed treatment. Very few patients have so far chosen the option of treatment supervision by a TASO volunteer.

#### *Next steps*

1. Decentralise TB care from Mulago Hospital TB clinic by intensifying efforts to ensure successful provision of TB diagnostic and treatment services, initially at Kawempe Health Centre and then at other urban health centres.
2. Consider advantages and disadvantages of continued efforts to mobilise community contribution through TASO versus existing community groups in Kawempe.

#### *Affordability and cost-effectiveness*

The 2 objectives of the economic analysis in Kawempe are: a) to identify the cost and cost-effectiveness of community-based treatment in Kawempe Division in 1999; b) to identify the cost and cost-effectiveness of hospital-based treatment in 1999. Investigators have developed a detailed protocol, but have not yet started data collection and analysis because funding only became available for the economic component of the project in November 1998.

#### *Next steps*

1. On account of limited uptake so far of community-based TB treatment in Kawempe Division, undertake the economic evaluation between August 1999 and July 2000.

### **Kiboga, Uganda**

#### *Background*

Kiboga District is rural with a population of 167,000. The district TB coordinator has gained the support of local political leaders at grassroots level for a scheme of fully ambulatory TB treatment. Patients choose between treatment

supervised in health centres or in the community by CHWs drawn from members of the Parish Development Committees. The referral scheme involves the 14 Sub-County Health Workers (responsible for public health) in the district who form the link between the health services and the CHWs. In 1997 project investigators lobbied local political leaders and trained health staff prior to project implementation in Q1 1998.

### *Acceptability*

Investigators have completed a survey of acceptability in Kiboga District.

### *Next steps*

1. Analyse results and prepare report.

### *Effectiveness*

#### Case finding

The table shows the number of patients diagnosed from 1996-1998 according to type of patient.

Category of patient	1996		1997		1998	
	No.	%	No.	%	No.	%
New sputum smear-positive	84	69%	149	68%	138	69%
Retreatment sputum smear-positive	2	2%	2	1%	3	2%
New sputum smear-negative	30	25%	52	24%	51	26%
New extrapulmonary	6	5%	16	7%	7	3%
<b>Total</b>	<b>122</b>	<b>100%</b>	<b>219</b>	<b>100%</b>	<b>199</b>	<b>100%</b>

#### Treatment outcomes

The table shows the outcomes of treatment of patients with new sputum smear-positive pulmonary TB registered in 1996 (before the introduction of the option of TB treatment in the community) and afterwards in 1997 and Q1 1998.

	1996		1997		Q1 1998	
	No.	%	No.	%	No.	%
<b>No. registered</b>	<b>84</b>		<b>149</b>		<b>27</b>	
Cured	36	43	72	48	19	70
Completed	7	8	17	11	2	7
Failure	2	2	1	1	0	0
Died	14	17	22	15	4	15
Default	21	25	28	19	0	0
Transferred out	4	5	9	6	2	7

### *Next steps*

1. Obtain concurrent data for Masindi District (the control district).
2. Start planning how to scale up the approach which includes the option of community TB treatment.

### *Affordability and cost-effectiveness*

The objective of the economic analysis in Kiboga District is to compare the cost and cost-effectiveness of the approach without the option of community TB treatment (i.e. health facilities only), with the approach which includes the option of community TB treatment (i.e. health facility and community TB treatment). The investigators have developed a detailed protocol, but have not yet started data collection and analysis. This was because funding only became available for the economic component of the project in November 1998.

### *Next steps*

1. Undertake the economic evaluation between January and July 1999.

## **Ndola, Zambia**

### *Background*

Ndola District is urban with a population of 609,000 divided between various "compounds" (townships). The Ndola Catholic Diocese Health Department launched an AIDS programme with home-based care scheme for the chronically ill in 1992, extending subsequently to other compounds. A consortium of 9 European donor agencies supports the programme. The volunteer CHWs in the home-based care scheme are mostly women motivated by religious conviction. They receive some incentives in the form, for example, of maize flour at a discount price. Following the development of a referral system and health staff training, TB patients in Nkwazi compound had the option of treatment of TB in the community, in close liaison with the district TB programme and Ndola Central Hospital. The project investigators in 1997 extended the option of TB treatment in the community to Chipulukusu compound. Twapia compound represents a control site, without the training and referral scheme introduced in Chipulukusu. The government health centres and the home care programme have kept separate records of case-finding and treatment outcomes.

### *Acceptability*

ACTIONAID has published an account of patient and CHW perceptions of the home-based care scheme, including community contribution to TB care, in the "Strategies for hope" series.<sup>9</sup>

## *Effectiveness*

### Case finding

Nkwazi compound, July 1995-December 1997

Extra Pulmonary Tuberculosis	16	12.7%
Pulmonary Tuberculosis	110	87.3%
<b>Total</b>	<b>126</b>	<b>100%</b>

Pulmonary Smear Positive	60	54.5%
Pulmonary Smear Negative	50	45.5%
<b>Total</b>	<b>110</b>	<b>100%</b>

### Treatment outcomes

Nkwazi compound, July 1995-December 1997

#### Smear positive pulmonary tuberculosis

Cured	36	60.0%
Completed	6	10.0%
Died	12	20.0%
Defaulted	3	5.0%
Transferred out	3	5.0%
<b>Total</b>	<b>60</b>	<b>100.0%</b>

#### Smear negative pulmonary tuberculosis.

Completed	32	64.0%
Died	13	26.0%
Defaulted	3	6.0%
Transferred out	2	4.0%
<b>Total</b>	<b>50</b>	<b>100.0%</b>

#### Extra Pulmonary Tuberculosis

Completed	13	81.3%
Died	2	12.5%
Transferred out	1	6.3%
<b>Total</b>	<b>16</b>	<b>100.1%</b>

#### All Patients

Completed	87	69.0%
Died	27	21.4%
Defaulted	6	4.8%
Transferred out	6	4.8%
<b>Total</b>	<b>126</b>	<b>100.0%</b>

The table shows treatment outcomes for new sputum smear-positive pulmonary TB cases registered in 3 compounds (Nkwazi, Chipulukusu and Twapia) in Q1 1998, according to where patients are registered.

Patients registered	Cured (%)	Completed treatment (%)	Failed treatment (%)	Died (%)	Interrupted treatment (%)	Transfer (%)	Total (100%)
Chipulukusu home care programme	2	0	0	0	0	1	3
Chipulukusu Health centre	2	2	0	1	4	4	13
Nkwazi home care programme	3	1	0	0	1	1	6
Twapia health centre	0	5	0	4	2	2	13

#### *Next steps*

1. Check completeness of data (very small numbers of patients registered).
2. Investigate health service provision problems accounting for treatment interruption.
3. Explore how partners (NGO and government health services) can make more widely available an approach which is successful on a small scale with small patient numbers.

#### *Affordability and cost-effectiveness*

The investigators in Ndola have not yet developed a protocol for economic analysis. From the perspective of providers (i.e. clinic government health services and the NGO home care programme), it would be useful to undertake an analysis of the incremental costs and cost-effectiveness of tuberculosis treatment provided through the home-based care programme in Ndola in comparison with clinic-based care. The costs to patients associated with clinic and home-based care should also be compared. At present the incremental (additional) costs to the home-based care programme associated with providing TB care are limited, since the programme has the capacity to add on TB care to its activities at minimal or in some cases no cost. However, this may change if the caseload increases beyond a certain point. The aim should therefore be to assess how costs might change if the caseload does increase, and at what point (in terms of numbers of patients) this change is likely to occur.

#### *Next steps*

1. Project investigators to identify a health economist to undertake the analysis.

#### 4. Situation analyses

The table shows the type of situation analysis performed in each of the 3 project sites. In each case the situation analysis is preparatory to a planned intervention project.

**Table. Situation analysis in 3 project sites**

Project site	Country	Type of situation analysis
Rundu District	Namibia	Assessment of potential community involvement in provision of TB care
Hlabisa District	South Africa	Assessment of potential of traditional healers to contribute to provision of TB care
Kilombero District	Tanzania	Assessment of potential community involvement in provision of TB care

#### 5. Summary of main issues arising from the meeting

*i) Technical aspects of tuberculosis control*

a) Extended NTP management responsibilities.

Capable managers are crucial to effective programme implementation. Making available the option of community TB treatment extends the managerial responsibilities of the TB programme staff and those responsible for coordinating the activities of the relevant community organization. It is therefore necessary to strengthen management capacity in order to harness the community contribution to TB control.

b) Developing links between general health services, NTP and the community organization, and establishing a referral scheme.

Successful community contribution to TB control requires close collaboration and coordination between general health services, NTP and the community organization, and the establishment of a referral scheme. TB suspects and patients pass between these arms of the health system during the process of presentation with symptoms, diagnosis, treatment and monitoring of progress. The type of links between these arms and the type of referral system established depends on the communications infrastructure in the particular setting (e.g. if there are telephones, the quality of roads, the availability of transport, the quality of the mail service, the cadres and number of staff available).

c) Training and supervising CHWs

The staff responsible for training and supervision of CHWs may be the TB programme staff, the general health services staff, the community organization coordinators, or a combination of these.



d) Development and introduction of recording and reporting systems in the community.

In supporting TB patients during their treatment, CHWs must observe and record the patients' treatment and liaise with TB programme and health services staff so that the district TB register contains a complete record of patients' treatment administration and outcome.

e) Distribution of anti-TB drugs

The supply and distribution of anti-TB drugs extends as far as the health centres with decentralised provision of TB care beyond hospitals, and must extend into the homes of TB patients and the CHWs with decentralisation beyond the health centres into the community. There must be the same guarantees of security against misuse and theft with drug distribution to TB patients and CHWs as with drug distribution to health facilities.

*ii) Priority roles of CHWs*

In improving TB control, it is necessary to ensure that the emphasis of new efforts is on improved treatment adherence and therefore successful treatment outcome, before seeking to expand case-finding activities. Otherwise, expanding case-finding in the presence of low treatment success rates leads to the generation of chronic cases and drug resistance. The main role of communities in participating in TB care should therefore initially be in improving adherence to treatment and consequently successful treatment outcome. In the context of a programme achieving high treatment success rates, community participation will be valuable in increasing case-finding through intensified identification of suspects, by increased awareness and by home visits.

*iii) Identifying and mobilising CHWs<sup>10</sup>*

While the use of CHWs is unlikely to prove a magic bullet to solve general health service problems rooted in both health and political power, the contribution of CHWs is crucial in developing a health system which is responsive to people's needs and provides equitable access. In mobilising CHWs to contribute to TB care, the use of existing community organizations, e.g. women's associations, Parish Development Committees, rather than the creation of new ones may lead to greater sustainability.

The potential for a community to contribute to TB care depends on the degree to which it is sufficiently cohesive for individuals to take part in community initiatives. This depends on development of civil society, indicated by the presence of NGOs, philanthropic bodies and patient groups, in a conducive political climate and with population stability. The different ways in which communities participate in TB care depend on the level of socio-economic development, the particular cultural setting, and the degree of social mobilisation for TB among other health activities.

NGOs often play an important role in community contribution, since these organisations are usually closer to the community than the formal health care sector. The extent of NGO involvement in community contribution to TB care depends on the responsibility that governments take for the health care sector in each country. Community participation in TB control is likely to be particularly successful where community participation is already a part of the health care system.

*iv) HIV/AIDS community care organizations*

There are several limitations of HIV/AIDS community care organizations in contributing to TB care: 1) the population coverage is often limited; 2) where such organizations exist, they are by their nature not long-established; 3) they are often almost entirely financially dependent on outside donor funding; 4) some organizations provide care through clinics but do not reach beyond these clinics into the community, are therefore not community-based and have limited scope for facilitating community contribution to TB care; 5) the stigma commonly attached to HIV/AIDS may deter TB patients from seeking TB care through HIV/AIDS organizations.

*v) Sustainability*

Ongoing support and the recognition of CHW motivation are crucial to ensuring CHW sustainability. Preventing CHW “drop out” means ensuring support and that CHWs receive whatever is the perceived benefit from contributing in a particular setting. Examples of benefit include material incentive (whether financial or otherwise), improved social standing, self merit from religious or humanitarian conviction, education. On-going training contributes to on-going support and motivation and is necessary on account of CHW turnover.

*vi) Research methodology*

The research methodology used must be appropriate to the research questions asked in the particular setting and should be understandable by those responsible for making decisions on the basis of the research findings. The research question is “what is the effectiveness, acceptability, affordability and cost-effectiveness of a district TB programme which provides the option of treatment supervision in the community, in comparison with one which doesn’t?” The methodology of a concurrent comparison is often suitable for evaluating the effect of one particular well-defined component in a randomised controlled trial. After consideration of the cost and logistic implications of a concurrent comparison, the investigators in most projects opted for a historical comparison, i.e. programme evaluation at baseline and then following the introduction of the option of treatment supervision in the community.

The investigators in each individual project have to exercise care in the presentation and interpretation of results. The overall comparison is between a system which offers the community supervision option and one which doesn’t. It may also be useful to compare indicators directly between different groups of patients according to treatment supervision option. It may be important to show, for example, that patients do at least as well with the innovative option of community treatment supervision as with the previous conventional option of health facility supervision.

However, supervision option reflects patients' choice. With non-random allocation of patients to different supervision options, differences in the characteristics of patients grouped by treatment supervision option confound any differences found in the indicators measured. Thus it is not possible to generalise the results from each specific option for treatment supervision to the group of patients who don't choose that option. In other words, it is not possible to recommend the option of community treatment supervision for everyone just because it may be the lowest cost, most acceptable and most effective option among those patients who choose it.

*vii) Getting research findings into policy and practice*

The support of community organizations, community leaders, politicians, policy-makers in health ministries, and organizations of health professionals is necessary to translate lessons learned from projects into policy and practice aimed at extending on a wide scale community contribution to tuberculosis care. Obtaining this support depends on involving these groups from an early stage in developing and implementing projects and on maintaining involvement through good communication and advocacy.

*viii) Generalisability of approach*

While the principles of community contribution to TB care are generalisable (e.g. the need for close links between the general health services, TB programme and community group), the details of how communities make that contribution (e.g. the most appropriate community group whose members can support TB patients during their treatment and promote adherence) will largely depend on the specific setting. This must take into account the capacity of health services to provide TB care without community contribution, local socio-economic conditions, the development of civil society and awareness of TB as a problem.

*ix) Scaling up*

If investigators demonstrate the success of community contribution to TB care in a chosen district, the next step is to scale up the approach to extend the benefits to a larger population. After convincing the necessary decision-makers, replicating success at district level on a wider scale, e.g. provincial level, requires careful planning and budgeting. Preliminary findings suggest that in the long run the provision of TB care which includes the option of patient supervision in the community is more cost-effective than the provision of TB care without this option. Even if this is the case, wider dissemination of this approach will initially necessitate certain extra resources. These may include providing transport for supervision of CHWs, training staff and HCWs, and developing communication links. It is therefore necessary in planning scaling up to calculate what investments are necessary to implement the approach on this wider scale. The cost analyses from Kiboga (Uganda) and Machakos (Kenya) will provide particularly useful guidance here, as they will include detailed analysis of the "start-up" costs associated with introducing community-based care.

## **6. Conclusion**

Successful collaboration between the general health services, NTP and CHWs depends on the following: i) good communication links and referral scheme; ii) good education of the TB patient and the patient's family; iii) training of the CHWs and the health services' staff; iv) system of regular supervision of CHWs by NTP and general health services' staff. The main challenges include the identification of the leadership responsible for managing the change process, the development of the management capacity, and ensuring sustainability.

At the end of the 2-3 years of the projects, complete information will be available on the effectiveness, affordability, cost-effectiveness and acceptability of the community contribution. This will provide a rational basis for the development of policy guidelines. If the overall evaluation of community contribution is favourable, dissemination and implementation of policy guidelines for community contribution are likely to result in the more widely available provision of effective TB care and the more efficient use of resources through social mobilisation.

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## Annex 1 Summary of progress in economic evaluations

### Summary of project objectives, current state of progress, important milestones and anticipated date for completion of economics analysis

Project and Country	Objectives	Current Status	Important Milestones	Anticipated completion date
Francistown, Botswana	(i) identify the cost and cost-effectiveness of home and hospital-based care for chronically ill tuberculosis patients (ii) identify whether introduction of home-based care will significantly reduce costs associated with hospital care of chronically ill tuberculosis patients	Detailed protocol developed Data collection/analysis in progress	Collection and analysis of data concerning: Health services costs per patient for home and hospital-based care (early 1999) Caregiver costs per patient for hospital-based care (early 1999) Average and total hospital costs for chronically ill patients in 1997 and 1999 (early 2000)	mid-1999 for objective 1. July 2000 for objective 2.
Machakos District, Kenya	(i) determine the cost per case managed and the cost-effectiveness of treatment for conventional hospital-based treatment, used until October 31 <sup>st</sup> 1997 (ii) determine the cost per case managed and the cost-effectiveness of treatment for the community-based approach used since Nov 1 <sup>st</sup> 1997	Detailed protocol developed Data collection/analysis in progress	Completion of cost data collection and analysis (early-mid 1999) Cost-effectiveness analysis (July 1999)	July 1999
Lilongwe, Malawi	(i) identify the cost-effectiveness of the case management approach used for new smear-positive patients during the first six months of 1997 (hospital-based care for intensive phase) (ii) identify the cost-effectiveness of the case management approach used for new smear-negative patients during the first six months of 1997 (unsupervised out-patient treatment unless hospitalisation warranted by medical condition)	Detailed protocol developed Health services cost data collection/analysis in progress Data collection	Completion of health services cost data collection (end March 1999) Start of collection of patient/guardian cost data (January 1999) Completion of patient/guardian cost data collection (March 1999)	July 1999

	<p>(iii) identify the cost-effectiveness of the case management approach used for new smear-positive patients during the first six months of 1998 (includes option of out-patient DOTS in health facilities)</p> <p>(iv) identify the cost-effectiveness of the case management approach used for new smear-negative patients during the first six months of 1998 (guardian/health facility-based DOTS introduced for first two months)</p>	<p>tools for collection of patient/guardian cost data and methodology for sampling/data collection in process of being finalized</p>	Cost-effectiveness analysis (July 1999)	
Rundu District, Namibia	<p>(i) identify the cost-effectiveness of community-based DOTS</p> <p>(ii) identify the cost-effectiveness of clinic-based DOTS</p> <p>(iii) identify the cost-effectiveness of the existing approach to treatment</p>	<p>Detailed protocol developed</p> <p>Data collection/analysis not started</p>	<p>Implementation of DOTS – necessary before any economic analysis is relevant</p>	uncertain

**Summary of project objectives, current state of progress, important milestones and anticipated date for completion of economics analysis (cont.)**

<b>Project and Country</b>	<b>Objectives</b>	<b>Current Status</b>	<b>Important Milestones</b>	<b>Anticipated completion date</b>
Cape Town, South Africa	(i) identify the cost-effectiveness of tuberculosis treatment in Guguletu, overall and for each of the three DOTs supervision options (community, clinic and workplace) (ii) identify the cost-effectiveness of tuberculosis treatment in Nyanga and Chapel St, where DOTs is only clinic-based	Detailed protocol developed Detailed cost and cost-effectiveness results available for Guguletu and Chapel Street	Completion of collection of cost data in Nyanga and potentially other parts of Cape Town to enable more extensive sensitivity analysis Analysis of cost-effectiveness of tuberculosis treatment in Chapel St. and Nyanga Appraisal of cost implications of implementing community-based treatment throughout Cape Town (all early-mid 1999)	mid-1999 except for proposed cost appraisal (this was suggested as an addition to the protocol in Harare – inclusion needs confirmation before timeframe can be defined)
Hlabisa, South Africa	Not defined as yet	No detailed protocol Preliminary discussions held concerning what economics analysis may be appropriate	Definition of how traditional healers are to be involved in tuberculosis treatment Development of detailed protocol for economics analysis	uncertain
Tanzania	Not defined as yet	As above for Hlabisa	Development of detailed protocol	uncertain



Kawempe Division, Kampala, Uganda	(i) determine the cost per case managed and the cost-effectiveness of hospital-based treatment in 1999 (ii) determine the cost per case managed and the cost-effectiveness of community-based treatment in 1999	Protocol developed Data collection not yet started	Completion of patient cost data collection and analysis (end November 1999) Completion of health services cost data collection and analysis (end February 2000) Cost-effectiveness analysis (end February 2000)	March 2000
Kiboga District, Uganda	(i) determine the cost per case managed and the cost-effectiveness of treatment in Kiboga District since November 1997 (community-based DOTS) (ii) determine the cost per case managed and the cost-effectiveness of treatment in Masindi District since November 1997 (conventional hospital-based treatment)	Protocol developed Data collection not yet started	Piloting of patient questionnaires in Kiboga (January 1999) Completion of collection of patient/attendant cost data (end April 1999 for Kiboga; end May 1999 for Masindi) Completion of collection of health services and community volunteer cost data (end Feb 1999 for Kiboga; end March for Masindi) Completion of cost data analysis (end June 1999) Cost-effectiveness analysis (end July 1999)	July 1999
Ndola District, Zambia	(i) identify the incremental cost-effectiveness of home-based DOTS in comparison with clinic-based DOTS from the perspective of care providers (ii) identify the costs to patients associated with home-based DOTS and clinic-based DOTS (iii) appraise the cost and cost-effectiveness of home-based DOTS if the caseload reaches a level at which programme capacity needs to be increased	Proposed analysis included in overall project protocol; relevant analysis defined in more detail at workshop	Identification of economist from southern/east Africa to undertake analysis on contract basis Finalization of details of economic analysis following identification of economist	August 1999

## Annex 2 List of participants

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### **Annex 3** List of training tools and educational materials

#### *Botswana*

Home Based Care for the TB Patient (care-giver handbook/leaflet)  
TB patient information booklet  
TB patient information leaflet  
Various TB posters

#### *Kenya*

Leaflets designed for patients with TB and their family/guardian  
Leaflet for policy makers  
Leaflet designed for Community Health Volunteer  
Leaflet for Peripheral Health Worker  
Diagnostic chart TB

#### *Namibia*

National TB policy  
National TB Guidelines  
DOTS T-shirts  
DOTS posters  
TB leaflets  
DOTS leaflets in local languages in project area  
Project-specific IEC materials still to be developed

#### *South Africa (Guguletu)*

Fill the Country with DOTS: A community-based TB treatment training manual.  
M. Caetzee, Evder Sandt. Chasa/TB Alliance Description: A training manual for CMWs based on several years of training CHWs in the Cape Metropole, Western Cape, 1997.

Tackling TB Together: Trainers Manual for TB Treatment Supporters; Provincial Administration of the Western Cape, 1998. Description: In response to a need for a Provincial standardised manual, this was commissioned, and was to draw on the Chasa/TB Alliance manual and other NGO materials. The final product however differed significantly from the NGO experiences, and is currently being modified. April 1998.

Managing Community-based DOTS: A guideline for the implementation and management of Community-based DOT. Provincial Administration Western Cape, Nov 1998. Description: A guideline for organizations to implement and manage community-based DOT.

Report on an evaluation study of the course manuals in training of community-based TB treatment supports in the Western Cape. A. Schaffer. October 1998. Description: Evaluation of 2(above) and its use in training of CHWs.

TB Health Workers Supplement: Practical Guidelines to the NTP. Western Cape Province; January 1998. Description: Training manual and overheads for health

service personnel (including all staff - nurses, doctors, CHW staff) on operational aspects aimed at improving performance of the TB programme.

#### *Tanzania*

National TB and Leprosy Treatment/Management Guidelines

Training Guidelines for community-based DOTS observers

Criteria for selection of community-based DOTS

#### *Uganda*

National TB/Leprosy Manual (technical)

\*Technical and Operational Guidelines for DOTS implementation

\*Training Plan for SCHWs for DOTS

\*Training Manual for Community Volunteers

\*Posters (eight different types and translated to 5 languages)

\*Refresher Sputum Microscopy Training Manual

\*Aide Memoirs (a) Diagnostic flow chart (b) Drug regimens (c) ZN Methodology

\*Calendars each year

Leaflets for (a) patients (b) health workers (c) policy makers

\*specific for DOTS

#### *Zambia*

Training manual for community volunteers - HIV/AIDS Home Care Programme. 20 modules, including HIV/AIDS hygiene, basic nursing skills; one module on TB.

Training manual for community DOTS supervision. Training manual for community volunteers (who followed the general training and worked for 6 months in the home care programme) to become DOTS supervisors. This manual is based on the Uganda manual.

## Annex 4 Workshop agenda

<b>Monday</b> <b>7 December</b>	08.30-09.00	Registration
	09.00-09.30	Opening
	09.30-10.00	Introduction of participants and overview of meeting
		<b>Presentation of progress report and interim results</b> (TB programme performance and acceptability)
	10.00-10.30	Francistown, Botswana
	10.30-10.45	<b>Break</b>
	10.45-11.15	Machakos District, Kenya
	11.15-11.30	Rundu District, Namibia (situation analysis)
	11.30-12.00	Lilongwe, Malawi
	12.00-12.30	Guguletu, Cape Town, South Africa
	12.30-13.30	<b>Lunch</b>
	13.30-14.00	Hlabisa, KwaZulu-Natal, South Africa
	14.00-14.30	Kawempe, Kampala, Uganda
	14.30-15.00	Kiboga District, Uganda
	15.00-15.30	<b>Break</b>
	15.30-16.00	Ndola, Zambia
	16.00-17.00	<b>Small groups</b> What have been the problems, difficulties, constraints and solutions?
<b>Tuesday</b> <b>8 December</b>	17.00-17.30	Report back on small group work
	09.00-10.00	<b>Presentation skills</b> (D. Maher)
		<b>Economics analysis</b> (N.B. individual consultations with Ms Floyd during small group work on training tools and educational materials and acceptability).
	10.00-10.10	<b>General introduction and overview</b> (K Floyd)
		<b>Presentation of economics analysis</b>
	10.10-10.20	Francistown
	10.20-10.30	Machakos
	10.30-10.50	<b>Break</b>
	10.50-11.00	Lilongwe
	11.00-11.10	Guguletu
	11.10-11.20	Kawempe
	11.20-11.30	Kiboga
	11.30-11.40	Ndola
	11.40-13.00	<b>Small groups</b>
	13.00-14.00	<b>Lunch</b>
	14.00-15.00	<b>Report back on small group work on health economics analysis</b>
		<b>Training tools and educational materials</b>
	15.00-15.20	General introduction
	15.20-15.40	<b>Break</b>



	15.40-16.40		<b>Small groups</b>
	16.40-17.20		<b>Report back on small group work</b>
<b>Wednesday 9 December</b>	09.00-09.10		<b>Acceptability</b> Introduction
	09.10-10.40		<b>Small groups</b>
	10.40-11.00	<b>Break</b>	
	11.00-11.45		<b>Small groups</b>
	11.45-12.45		<b>Report back on small group work</b>
	12.45-14.00	<b>Lunch</b>	
			<b>Presentation of next steps</b>
	14.00-14.10	Francistown	
	14.10-14.20	Machakos	
	14.20-14.30	Lilongwe	
	14.30-14.40	Rundu	
	14.40-14.50	Guguletu	
	14.50-15.00	Hlabisa	
	15.00-15.30	<b>Break</b>	
	15.30-15.40	Kawempe	
	15.40-15.50	Kiboga	
	15.50-16.00	Ndola	
	16.00-16.15		<b>Final comments</b>
	16.15-16.30		<b>Closing</b>